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Enclosure No. 3

Report of Visits to Jimma and Alemya

Jimma

February 13-15, 1961

A one-day visit to the Agricultural Technical School at Jimma was made with Mr. Hugh Rouk on February 14, 1961. The campus buildings, the farms and coffee research were visited but the curriculum was not studied in detail, nor were the facilities inspected carefully. The following observations are offered for what they may be worth to the contract program:

1. Physical Facilities

A commendable job has been done in providing living accommodations for the U. S. and Ethiopian staff. For students of this age, there is much to be said for having the staff housed on the campus. The buildings are in a fair state of repair. It appears that with reasonable care and upkeep, the classroom building and administration building will remain serviceable. The projected expansion of facilities will provide needed improvement in recreational and administrative facilities. The science laboratories are unusually good for a secondary school. The shop facilities are likewise outstanding. The lack of an adequate water supply is apparently being remedied.

2. Training

The nature and completeness of the curriculum offered appeared, on superficial examination, to be well suited for the purpose of the school. The emphasis on practical agricultural subjects has not seriously crowded more basic, theoretical subjects from the curriculum. An increasing number of the graduates of this institution will enter institutions of higher learning and this broad training will be needed. The careful selection of students from an increasingly large list of candidates will permit improvement of the standards and the caliber of students turned out.

The requirement that students work in the fields and gardens and with the animals is extremely important. Students who came from a farming community lack the experience of U. S. farm children and they require long and close contact with agricultural operations in their training. The agricultural project of a garden for each student is well conceived and is being carefully executed. No one can get the feel for the home garden from a book or the classrooms. The instruction in English appears to be effectively aimed at teaching students to express themselves well in written and spoken English.

Attention should be given continuously to how the course offerings in agriculture correspond with the training in the same subjects at Alemya. Repetition of secondary school instruction at the college

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level should be carefully avoided. It is realized that many students at Alemya do not receive their secondary training at Jimma, but many do and basic agricultural subjects are likely to lead to some undesirable repetition for these students.

### 3. Student Housing

It was obvious from discussions with instructors that the students at Jimma are highly motivated and are putting forth more effort than most students of secondary schools. This results, in part, from their being older than the average secondary school student in the U. S. but probably also from the competitive scholastic spirit which exists. The desire to maintain good conditions of personal appearance and cleanliness was evident when the students were compared with those other secondary schools visited. The dormitories were in an excellent state of cleanliness and tidiness. The kitchen and dining hall, on the other hand, were disappointing. There appeared to be far less supervision than is required for an operation of this kind. This aspect of their training is not only neglected, but they are being shown a poorly managed feeding operation. The kitchen was manifestly in a dirty, unhealthful condition, which can be expected to lead to health problems in the student body. It is recommended that some provision be made for more careful supervision of sanitation in the kitchen and of food preparation. The contrast with the kitchen at Alemya was striking.

### 4. Staff

The Ethiopian staff members appeared to be well adjusted and to be undergoing absorption into the program in a commendable manner. These staff members appeared to be qualified and eager to make their contribution. The plan of training most prospective staff members for the college at Jimma appears to be sound, where a staff member's subject area is covered in both institutions. The exposure to a research atmosphere, which exists to some degree, prepares both students and staff for college training and teaching.

The Technical High School is a bright spot in the education of Ethiopians and the intense competition for admission attests to the excellence of the training offered. The teaching staff and administration is to be congratulated on the manner in which they are performing in this very important project in Ethiopia's development.

## Alemya

February 17-21, 1961

Four days were spent in the Alemya area visiting the Imperial College of Agricultural and Mechanical Arts and the surrounding area. Discussions were held with the administrators and some staff members regarding the science training and the facilities were examined. The following observations are offered for what value they may be to the contract personnel and the college administration.

### 1. Physical Facilities

When the buildings, now under construction, are completed the physical plant will be ample to serve the present needs of the staff and students. The earlier lack of housing for U. S. staff members has undoubtedly affected their morale and effectiveness. The housing nearing completion should meet the needs of the U. S. staff and, presumably, the Ethiopian staff as they are phased in to replace U. S. personnel. The dormitory, kitchen and dining hall for students appear to be adequate and very well managed.

### 2. Training in Science

The amount of time devoted to the physical and biological sciences basic to agriculture is not ideal for training in modern agriculture. It is as good as many curricula in agriculture in the U. S., however, and graduates who elect to do graduate work in various agricultural sciences can make up deficiencies with not more than one year of work beyond that normally required of students who enter graduate school with a B.S. degree from accredited institutions in the U. S.

In my own field, I feel that the chemistry background for agricultural subjects, both in animal and plant sciences, could be materially strengthened by adding a course in biochemistry. This course, together with the organic chemistry course now offered, would provide adequate training in this area. The organic course could be directed toward imparting an understanding of the chemistry of natural products, important in life processes. The suggested biochemistry course could then deal with the reactions of these compounds which occur in animals and plants. Such subjects as carbohydrate and fat metabolism, purines, pyrimidines and nucleic acid chemistry, photosynthesis, etc., could be introduced from a chemical standpoint and would provide a better background for animal and plant physiology and for nutrition instructions.

A four credit course with three lectures and one, three hour laboratory per week for one semester should suffice. It would be most desirable if it were offered in the sophomore or junior year, preferably the semester following organic chemistry.

3. Staff

It appears that some conscious effort should be made to get outstanding students interested in field study where qualified Ethiopian instructors are not receiving advanced training abroad. Zoology, bacteriology, botany, mathematics, forestry and other fields need to be represented among the students who are receiving training to qualify them to teach at the college level. At least one Ph.D. in each major area would be desirable since it will be more difficult to arrange for more graduate work after the U. S. personnel has been withdrawn.

4. Nutrition Instruction

In view of the national importance of nutrition in the health of Ethiopians, it is recommended that several hours of instruction in human nutrition be incorporated into one of the required courses. This subject is of importance to the agriculture and health of the country and needs a place in the curriculum of persons being trained to assume positions of leadership in agriculture. It is not evident in which course such instruction should be offered, but it is recommended that 6-10 hours of instructions, with strong emphasis on the nutrition problems peculiar to Ethiopia and dealing with solutions to these problems with available agricultural products, be provided sometime during the sophomore or junior year. If a course in biochemistry were offered, this nutrition instruction could logically be offered near the end of such a course.

5. Research Facilities for Biochemistry

Research in biochemistry or agricultural chemistry is vital to the development of the programs in animal nutrition, plant physiology, bacteriology and other life sciences. Ato Abraham Besrat is well qualified to begin a research program in this area. His plans for the immediate future include the establishment of a laboratory which will permit the analysis of proteins and protein-containing foods and feeds for the amino acids which are dietary essentials for man and for monogastric farm animals. The equipment needed for doing such analysis on a limited scale is now available. Suitable laboratory space might be available in the present facilities. It appears, however, that a successful program in this area would require a research laboratory with approximately 400-500 square feet of space and certain constantly used items of equipment, including an autoclave refrigerator, pH meter, automatic dispenser, incubator (preferably water bath type) and a spectrophotometer. Efforts will be made to acquire these items from the Interdepartmental Committee on Nutrition for National Defense. A report will be made on this matter in April and if they are not available from this source, it is recommended that a research grant be requested from the National Institutes of Health for that purpose.

This type of research is badly needed now to evaluate the local products which are used, or might be used, as protein sources to supplement the poor quality cereal proteins which are the major sources of protein in the Ethiopian dietary. Until the animal foods, meat, milk and eggs are produced and marketed widely, the poor quality of proteins in most plant materials can be expected to be a major deterrent to adequate nutrition of the population. The project designed to improve the egg and poultry quality and availability now being pushed by the college and the extension service can be expected to have a tremendous impact on the nutritional welfare of a large segment of the population where these products are the major animal foods consumed. Eggs appear to be the most promising supplement of animal origin for infant feeding. This area of nutrition is the most pressing problem in Ethiopia and is likely to remain so for many years to come since it can only be solved by educating the general population to the need for suitable supplementation of breast feeding after the child is six months of age.

The training in agriculture being offered at Jimma and Alemya can be expected to have a great impact on the improvement of the nutritional status of the population. The educational effort in extension work is tied strongly to the health of the farm and urban family. The impact of the extension service on the health will be greatly magnified when and if home economics becomes a part of the program. The establishment of a secondary school in this area at Jimma would be the first step in providing trained persons to fill this gap in the extension effort. There appears to be no such development in the country at present and the need for persons trained in home economics is manifest.

Persons associated with the OSU contract should be aware of the "on the job training" aspects of the Public Health School and Training Center at Gondar. The internship period of training of health officers, community nurses and sanitarians, which lasts one year, is very effective in making it possible for persons normally best adapted to rote learning to become effective at applying their knowledge under the conditions they will encounter on the job. I have not examined the extension program to see if the agents are able to meet the demands for effective service beyond their knowledge of farming methods, etc. If they need additional training in extension, persons responsible may wish to visit the Gondar School.

In conclusion, the administrative and teaching staffs are commended for the excellent service they are rendering in their effort to improve agriculture in Ethiopia. They are, in many cases, working under severe handicaps, but they have, almost without exception, made the most of the resources at hand. The harmonious atmosphere and the dedication to the contract objectives indicate that great care has been taken in selecting personnel and in administering the project.

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Appreciation is expressed for the cooperation and hospitality shown by everyone associated with the OSU contract. Their cordiality made my mission most pleasant.